

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following remarks is respectfully requested.

Claims 1-6, 9, 15-18, 21-25, 31, 36, and 37 are currently pending in the application.

In the outstanding Office Action, the rejection to Claim 36 under 35 U.S.C. § 103(a) as unpatentable over Papasakellariou (U.S. Patent No. 6,700,919) in view of Sutton et al. (U.S. Patent No. 5,805,648, hereinafter "Sutton") was maintained and Claims 1-6, 9, 15-18, 21-25, 31, and 37 were indicated as allowed. Applicants acknowledge with appreciation the indication of allowable subject matter.

Initially, Applicants note that the prosecution history of the Office Actions and Responses incorrectly refers to Sutton as having patent number 6,721,299, instead of correctly referring to Sutton as having patent number 5,805,648. For the record, Applicants note that a telephone discussion was held on January 19, 2006 with Examiner where acknowledgment was made that this common typographical error does not affect the substance of the arguments and findings made in the prosecution history.

In response to the rejection of Claim 36 under 35 U.S.C. § 103(a) as being unpatentable over Papasakellariou in view of Sutton, this rejection is respectfully traversed. As acknowledged by the Examiner on page 3, lines 7-14 of the outstanding Office Action, Papasakellariou fails to disclose a path search part configured to carry out a path search using pilot symbols of a known phase included in a signal received via a multi-path propagation path and information symbols, and a feedback part configured to feedback the information symbols, where the path search part recursively implements the path search by repeating processes of implementing a path search using information symbols that are decoded and the pilot symbols are fed back via the feedback part in accordance with a timing detected in the path search and pilot symbols, as recited in Claim 36.

In other words, Papasakellariou merely proposes recursively implementing the “channel estimation” by repeating processes using information symbols and pilot symbols, and fails to even suggest recursively implementing the “path search.”

The Office Action relies on Sutton as teaching recursively implementing the path search.¹ However, contrary to this assertion, Sutton merely proposes repeating processes of judging whether or not the timing is a reception timing for receiving signals.²

In other words, blocks 16 and 18 shown in Figure 1 of Sutton and the corresponding description relate to the detection of the reception timing for receiving the signals. A threshold value is used to judge whether or not the timing is a reception timing.³ The reception timing is detected if the energy value exceeds the threshold value, and no reception timing is detected if the energy value is the threshold value or less. This process of judging the reception timing is repeated. Sutton fails to even suggest recursively implementing the “path search.”

On the other hand, as recited in Claim 36, the path search part of the present invention is configured to carry out a path search using pilot symbols of a known phase included in a signal received via a multi-path propagation path and information symbols, and the feedback part is configured to feedback the information symbols, where the path search part recursively implements the path search by repeating processes of implementing a path search using information symbols that are decoded and the pilot symbols are fed back via the feedback part in accordance with a timing detected in the path search and the pilot symbols. In other words, as described in the specification on page 25, line 21 to page 26, line 2, in the first path search step, when detecting respective timings of path components included in a received signal received via the multi-path propagation path, the respective timings of the

¹ Office Action dated October 21, 2005, page 3, lines 14-22.

² Sutton, col. 3, lines 10-12.

³ Sutton, Figure 1.

path components are detected using pilot symbols of a known phase which is included in the received signal. In the second path search step, respective timings of the path components are detected using an information symbol derived from a signal demodulated according to the timings detected in the first path search step and pilot symbols of a known phase.

Accordingly, because respective timings of the past components are detected by searching a path using pilot symbols of a known phase, and timings of each path component are detected again using the information symbol derived from a signal demodulated according to the timings obtained above and the pilot symbols of a known phase, the path search accuracy can be improved.

Therefore in the present invention, both the path search and the channel estimation are implemented in a recursive manner. For this reason, it is possible to improve the path search accuracy and the channel estimation accuracy, as described in the specification on page 27, lines 15-19.

Both Papasakellariou and Sutton fail to teach or suggest these features of the present invention and these effects of the present invention.

It should be noted that, even if Papasakellariou and Sutton were combined, this combination would only lead to recursively implementing the “channel estimation” and repeating processes of judging whether or not the timing is a reception timing for receiving signals.

Accordingly, Applicants respectfully submit that independent Claim 36 is allowable. Therefore, it is respectfully requested that the rejection of Claim 36 under 35 U.S.C. § 103(a) as anticipated by Papasakellariou in view of Sutton be withdrawn.

Consequently, in view of the foregoing discussion, it is respectfully submitted that this application is in condition for allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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